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TROUT CREEL SURVEY OF THE SOUTH BRANCH OF THE OCONTO RIVER, OCONTO COUNTY, 1984

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ABSTRACT

A creel survey was conducted during the 1984 trout season (May-September) on the South Branch of the Oconto River in Oconto County, Wisconsin. Estimated fishing pressure was 10,283 hours (147 hours/acre, 926 hours/mile), 75.4% of which occurred in May. Anglers caught trout at an average rate of .44/hour; brook trout dominated the catch. An estimated 2,973 fish (43/acre, 268/mile) were harvested, with 70%A in May. The trout harvest rate was .29/hour. Of harvested brook trout, 82% were ≥8 inches and 24% were ≥10 inches. A concurrent opinion survey showed that most anglers were generally satisfied fishing the South Branch.

CONTENTS

INTRODUCTION

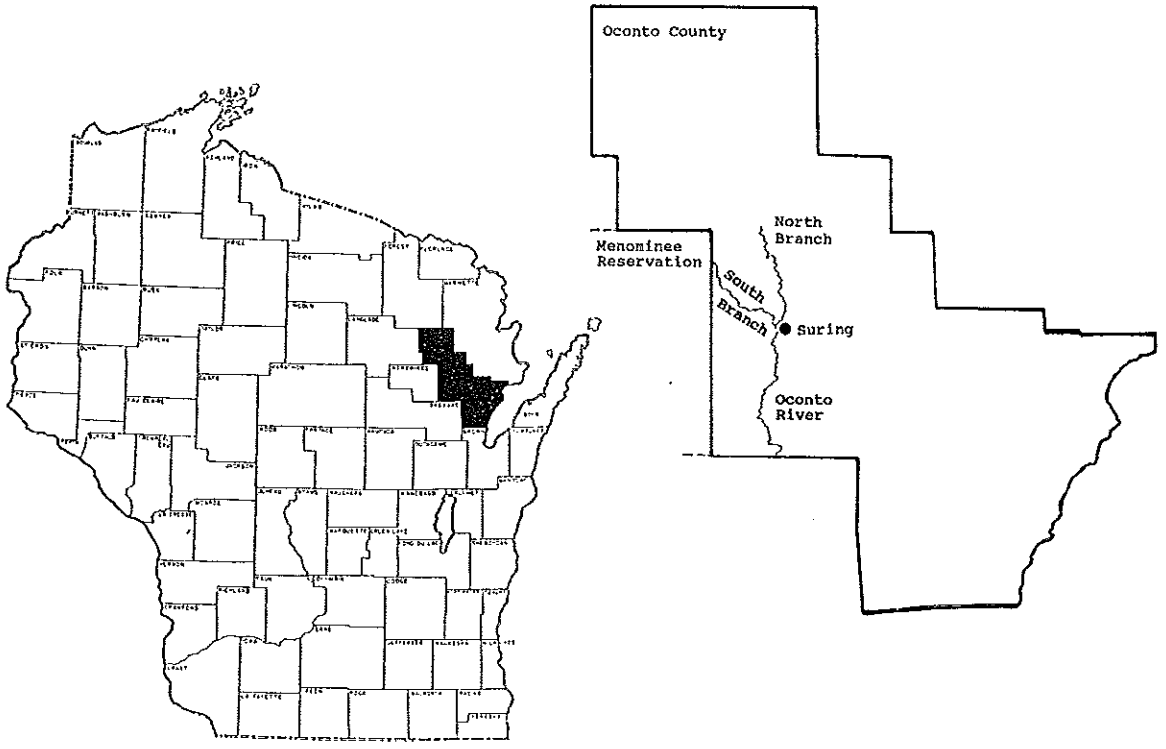
Fishing pressure and harvest data -- valuable information in fisheries management -- are not available for many northeastern Wisconsin trout streams. Therefore, this study proposed to determine fishing pressure and harvest on one of the largest of those streams, the South Branch of the Oconto River.

STUDY AREA

The study area is in east central Oconto County along the section of the South Branch flowing through state-managed fisheries area. A popular trout stream, the South Branch itself stems from several branches in Langlade and Oconto counties, then flows southeasterly to join the North Branch of the Oconto River near Suring.

The study covered 11.1 miles (70 acres) of the South Branch, from its confluence with the North Branch upstream to the Menominee Reservation (Fig. 1). This section of stream has an average 52-ft width, an average 1.5-ft depth, and a moderate rate of flow along a 4.5 ft/mile gradient.

Figure 1. Location of the South Branch of the Oconto River in Oconto County, Wisconsin.



The South Branch flows through rolling agricultural land with northern hardwoods and conifers along its flood plain. Predominant bottom types are sand, gravel, and rubble. The water is stained, hard, and slightly alkaline.

Throughout the study area are spring seeps that keep water temperatures cool overall, suitable for both brook and brown trout. One larger feeder stream, Pecore Creek, adds warmer water to the South Branch.

Thuemler (1977) reported natural trout reproduction when the area was last surveyed in 1977. Stream width and depth, however, prevented an accurate standing stock estimate.

Past fish management activities have included land acquisition, stream fencing, half-log installation, and fish stocking. The area is Class I (7.6 miles) or Class II (3.5 miles) trout waters with 90% of its frontage (10.0 miles) providing public access.

METHODS

A random stratified creel survey was conducted during the 5 May - 29 September 1984 trout season. Monthly-compiled data included 3 of 5 weekdays, both weekend days, and all holidays, which counted as weekend days.

A survey day was 4:00 a.m. - 3:00 p.m. or 1:00 p.m. - 11:00 p.m. Effectively covering access sites also required dividing the study area into 2 sections and alternating survey days between sections.

Creel clerks counted vehicles at 2-hour intervals and interviewed anglers between counts. To query more anglers, creel clerks left questionnaires (Append. A) with pre-addressed stamped return envelopes at vehicles.

Information requested during interviews and on questionnaires included hours fished; bait used; number and kind of fish caught; number and kind of fish kept; angler's age, sex, and residence; and number of anglers in party.

An angler opinion survey (Append. B) conducted simultaneously asked about satisfaction with number and size of trout caught, desired regulations changes, and overall quality of fishing trips.

RESULTS

FISHING PRESSURE

During the study, 356 surveyed (62% interview, 38% questionnaire) anglers fished 1,466 hours. Based on this sampling, an estimated 3,809 anglers fished an estimated 10,283 hours for an overall fishing pressure of 147 hours/acre or 926 hours/mile (Table 1).

Table 1. Fishing pressure.

Month	Weekends		Weekdays		Total	
	Hours	%	Hours	%	Hours	%
Opening Weekend May 5-6	4,992	48.5	--	--	4,992	48.5
May	1,218	11.8	1,555	15.1	2,773	26.9
Jun	504	4.9	605	5.9	1,109	10.8
July	368	3.6	252	2.5	620	6.1
Aug	109	1.1	290	2.8	399	3.9
Sep	209	2.0	181	1.8	390	3.8
Total	7,400	71.9	2,883	28.1	10,283	100.0

Weekend fishing pressure was 106 hours/acre; weekdays, 41 hours/acre. Almost one-half (48.5%) of total fishing pressure was on opening weekend; more than three-quarters (75.4) was during May.

TROUT HARVEST

Anglers caught 0.44 trout/hour and harvested 0.29/hour. The catch included 0.30 brook trout/hour with 0.18/hour harvested and 0.13 brown trout/hour with 0.10/hour harvested. Catch and harvest rates were lowest during opening weekend. The highest catch and harvest rates for brook trout occurred in July and September; for brown trout, August and September.

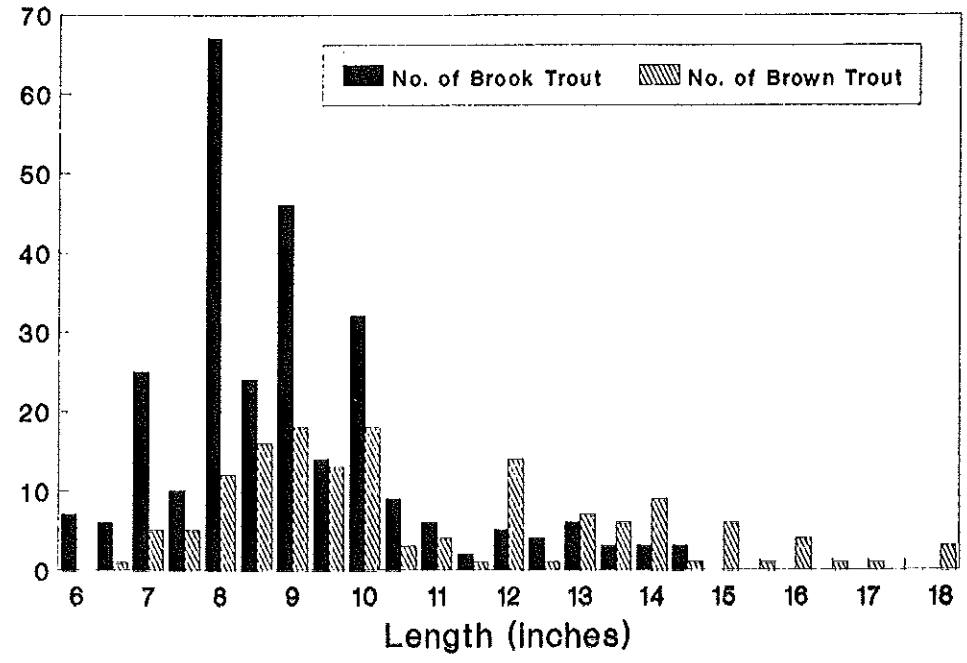
Among interviewed anglers, one-half caught at least 1 trout; about one-third, 2 trout; and about one-quarter, 3 or more trout. They reported releasing 50% of brook trout and 23% of brown trout caught. Only 2 anglers reported keeping the limit of 10 trout.

Altogether during the 1984 trout season, anglers harvested an estimated 2,973 fish from the South Branch (43/acre, 268/mile): 1,840 brook trout (26/acre, 166/mile); 1,035 brown trout (15/acre, 93/mile); and 98 others (1/acre, 9/mile), including northern pike and rainbow trout.

Harvested brook trout were 6.0-14.9 inches long (Fig. 2), averaging 9.2 inches. While 82% were ≥8 inches, only 24% were ≥10 inches. There was no difference in average size from mail survey reports vs. from creel clerk measurements.

Harvested brown trout were 6.5-24.0 inches, averaging 10.2 inches. Average size from mail survey reports was 2 inches larger than average size from creel clerk measurements.

Figure 2. Length frequency of brook and brown trout harvested.



ANGLER CHARACTERISTICS

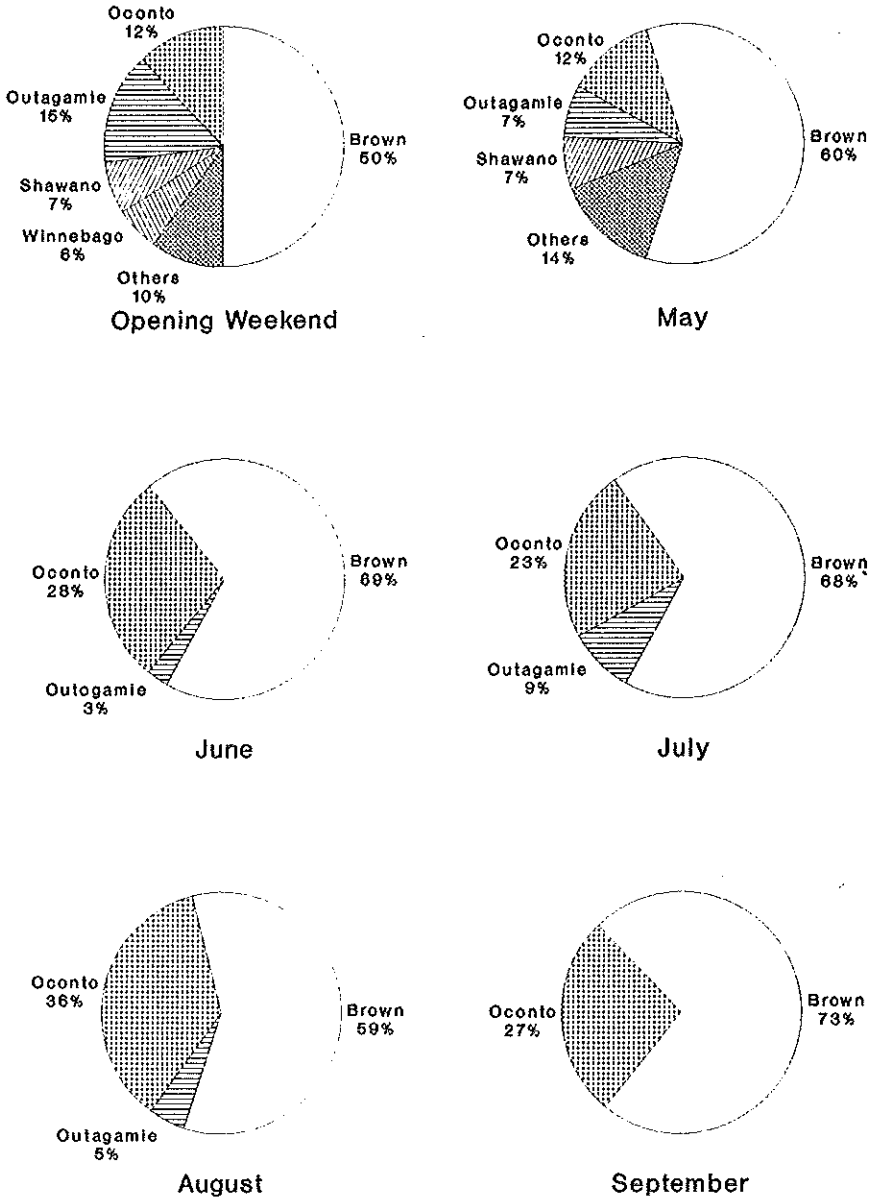
Angler characteristics were compiled from 285 interviews (Table 2). Most of the anglers (87%) were Wisconsin males aged 16-65. The average size of a fishing party was 1.7 anglers, except for opening weekend, which averaged 2.6 anglers/vehicle. Those interviewed split about half and half choosing between natural vs. artificial bait; 14% used a combination of both. Only 6%, however, fished with flies.

Table 2. Angler characteristics.

Characteristic	No.	%
Age		
≤15	30	11
16-64	249	87
≥65	6	2
Sex		
Male	254	98
Female	6	2
Residence		
Wisconsin	283	99
Elsewhere	2	1
Miles Travelled		
≤25	37	14
26-50	67	24
≥51	169	62
Bait Used		
Worms	166	49
Minnows	7	2
Spoons	6	2
Plugs	9	3
Flies	20	6
Spinners	131	39

Of the anglers fishing the South Branch, 67% were from the Fox Valley (Brown and Outagamie counties). Brown County anglers used the stream the most throughout the season (Fig. 3).

Figure 3. Anglers by county of residence.



Of the 95 anglers who answered the opinion survey, about half were satisfied with the number and size of trout caught (Table 3). There was no difference in response between anglers fishing Class I or II trout waters. However, as the season progressed, satisfaction with trout size declined.

When asked about further restrictions on the trout harvest, more than half favored regulation changes -- in particular, most wanted an increased size limit. Additional comments ranged from prohibiting canoes to developing habitat. Several anglers requested a special "artificials only" area and more trout stocking.

Nonetheless, 83% of the anglers were satisfied with overall fishing trip quality. The opening weekend scored the highest satisfaction rating, then anglers became somewhat less satisfied as the season progressed.

Interference from other anglers was not a problem, according to 85% of respondents. Even during the opening weekend, when the most interference was noted, only 25% were dissatisfied.

Table 3. Opinion survey results.

Criterion	Highly Satisfied/Satisfied		Dissatisfied/Highly Dissatisfied	
	No. (%)	No. (%)	No. (%)	No. (%)
No. of Trout Caught	9 (10)	41 (43)	37 (39)	8 (8)
Size of Trout Caught	7 (7)	41 (43)	37 (39)	10 (11)
Lack of Interference	17 (18)	64 (67)	11 (12)	3 (3)
Overall Trip Quality	18 (19)	61 (64)	11 (12)	5 (5)

DISCUSSION

FISHING PRESSURE

Fishing pressure per acre on the South Branch was low compared to most Wisconsin trout streams, while fishing pressure per mile was comparatively high (Table 4). Wider trout streams like the South Branch tend to have "lower/acre, higher/mile" fishing pressure than do narrower trout streams.

Total fishing pressure on the South Branch was 147 hours/acre or 926 hours/mile. However, without opening weekend pressure, the figures were only 76 hours/acre or 477 hours/mile. Altogether, May accounted for >75% of fishing pressure, which thereafter declined through the remainder of the exceptionally rainy trout season.

TROUT HARVEST

Trout catch and harvest rates on the South Branch were below those on other Wisconsin trout streams. In fact, harvest rates elsewhere were higher than catch rates on the South Branch. The low catch rates and average fishing pressure resulted in a below average harvest.

Brook trout were caught more often than brown trout, which is typical among trout streams. However, the average size of the brook and brown trout harvested from the South Branch was larger than usual, with a particularly high percentage of ≥8-inch brook trout and ≥12-inch brown trout (Table 5). Most of these larger trout were harvested in May.

The exceptionally high average size of the trout harvested indicates the South Branch's capability to produce large fish. On the other hand, the surprisingly low number of 6.0- to 7.9-inch trout harvested indicates that either these fish were unavailable or were released.

ANGLER CHARACTERISTICS

About two-thirds of the anglers came from the Fox Valley (Brown and Outagamie counties), travelling at least 45 miles to the South Branch. With below average trout harvest rates but above average size of trout harvested, the stream apparently attracts anglers who are after larger, rather than more trout.

Table 4. Fishing pressure and trout harvest on various Class I and II Wisconsin trout waters.

Stream	Fishing Pressure		Trout Harvest		Harvest Rates (per hour)		
	hours/acre	hours/mile	trout/acre	trout/mile	trout	brook	brown
South Branch, Oconto River[a]	147	926	43	271	.28	.18	.10
East Branch, Eau Claire River[b]	147	839	120	685	.96	.86	.10
Plover River[c]	126	840	62	413	.52	.38	.14
North Branch, Pike River[d]	203	904	52	232	.41	.23	.18
Emmons Creek[e]	344	820	360	858	.45	--	.45
Mecan River[f]	388	1,025	359	949	.60	--	.60
Radley Creek[g]	331	684	351	725	.45	--	.45
South Branch, Wedde Creek[h]	428	623	420	611	.60	--	.60
Namekagon River[i]	53	759	17	235	.98	--	.19
North Branch, Beaver Creek[j]	458	859	101	189	.28	--	.28
McKenzie Creek[k]	149	388	119	310	.70	--	.70

[a] current study
[b-c] Hauber 1983
[d] Thuemler 1983
[e-h] Avery and Hunt 1981
[i] Pratt 1981
[j] Meyers and Thuemler 1976
[k] Lowry 1971

Table 5. Sizes of trout harvested from various Wisconsin trout streams.

Stream	Trout Species	Percentage of harvest at least 8 inches	10 inches	12 inches
South Branch, Oconto River	brook	82	24	6
	brown	93	53	36
Eighteen Mile Creek[a] (2-year average)	brook	45	3	3
	brown	73	41	15
North Branch Beaver Creek[b]	brook	62	17	0
	brown	100	60	20
North Branch Pike River[c]	brook	12	3	0
	brown	65	24	6
4 central Wisconsin streams[d] (2-year average)	brown	72	25	4
North Branch Beaver Creek[e]	brown	99	54	33

[a-b] Avery 1983
[c] Thuemler 1983
[d] Avery and Hunt 1981
[e] Meyers and Thuemler 1976

MANAGEMENT RECOMMENDATIONS

I recommend the following:

1. Increase size limits, reduce bag limits, and restrict fishing methods in order to raise catch rates for trout on the South Branch.

2. Conduct creel surveys for 2 consecutive years to better sample fishing pressure and harvest rates. Atypical annual variables that can skew this important management data, such as the unusually high rainfall amounts during the 1984 season on the South Branch, would thus be mitigated.

Appendix A. The creel survey form.

Date_____
Census Site_____
Interview No._____

Angler Interview: South Branch of the Oconto River, 1984

Please fill out the following form and return in the self addressed enveloped.

1. Angler's residence: Wisconsin Non resident
(circle one)

2. County in which you reside: _____ (If non resident, what state?)_____

3. Distance Traveled (miles): _____

4. Anglers's Age: _____

5. Angler's sex: _____

6. Number of anglers in party: _____

7. Time started fishing: _____

8. Time ended fishing: _____

9. Type of bait used: _____

10. Kind and number of fish caught:

Species	Number Kept	Number Released

11. Estimate the length of each fish kept.

Species	Length

Appendix B. The angler opinion form.

Interview No:
Date:
Census Site:

We would also like to have your opinion regarding your most recent fishing experience on the South Branch of the Oconto River.

How would you rate the following?

		Highly Satisfied	Satisfied	Dissatisfied	Highly Dissatisfied
1.	The number of trout caught.				
2.	The size of the trout caught.				
3.	Lack of interference from other anglers.				
4.	Overall quality of trip.				

5. Would you be in favor of further restrictions on the number and size of trout that could be kept? _____
If yes, what kind of limitations; larger size limits, reduce bag limit, a limit of methods, etc.

_____

_____

_____

Any other Comments:

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